

REMARKS

In the Office Action dated November 23, 2007, claims 1, 3, 8, 14, 16 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Born et al. in view of an excerpt from a text by Baxes, and further in view of Paragios et al.

The Examiner relied on the Born et al. reference as disclosing a radiological device wherein a radiological image is obtained from a patient on a movable patient bed. The Examiner acknowledged that the Born et al. reference does not disclose obtaining a subtraction image by subtracting an empty image of the patient bed from an image showing the patient on the patient bed, but relied on the Baxes reference as disclosing the general use of subtraction images to remove common background image information from images of identical scenes.

The Examiner further acknowledged that neither Born et al. nor Baxes discloses detecting a body region by analyzing the aforementioned subtraction image by comparing geometry of the patient that is detectable in the subtraction image with statistically determined proportions of human anatomy. The Examiner relied on the Paragios et al. reference as disclosing a system and method for segmenting the left ventricle of the heart using a contour propagation model that integrates visual information and anatomical constraints. The Examiner stated the Paragios et al. reference discloses that the anatomical constraints are based on a *priori* knowledge of the anatomy of the heart. The result of the segmentation disclosed in the Paragios et al. reference is an image of the boundary of the left ventricle, which is then superimposed on the original image data.

The Examiner stated it would have been obvious to a person of ordinary skill in the art to include the step of using both image data and a *priori* knowledge of

human anatomy to detect a body region, as taught by Paragios et al., in the radio-diagnostic device of Born et al. and Baxes, in order to accurately capture an image of a moving body region.

This rejection is respectfully traversed for the following reasons.

The Paragios et al. reference is exclusively concerned with analyzing *already-acquired* image data, and this image data represents *interior* anatomy of the examination subject. By contrast, the subject matter disclosed and claimed in the present application is for the purpose of accurately positioning a patient *prior to* obtaining medical diagnostic data from the patient, and for this purpose only the *exterior* of the patient is analyzed. Based on this exterior analysis of the patient, the patient can then be accurately positioned for subsequently obtaining the medical diagnostic data with a treatment unit.

Each of independent claims 1 and 14, in the form as presented at the time the November 23, 2007 Office Action was rendered, explicitly referred to obtaining an image that shows the *exterior* of the patient. Each of those independent claims has also now been amended to make clear that this image is a non-invasive image. This is supported in the disclosure as originally filed on the basis of an example of the image recording device for being a video camera, as described at page 8 of the present specification. The description of the recording of the exterior of the patient on a patient bed is present at numerous locations, such as the paragraph bridging pages 3 and 4 of the present specification.

The Paragios et al. reference provides no teaching or guidance whatsoever with regard to positioning a patient *before* acquiring the image data that are analyzed in the manner disclosed in Paragios et al. The Paragios et al. reference is strictly

related to analyzing an image of interior anatomy of a patient, and applies only to image post-processing, and has nothing to do with how the actual image itself is acquired, much less how the patient is positioned for acquiring that image.

Moreover, even without the aforementioned amendments to the independent claims, it is difficult to envision how the Examiner believes the Born et al./Baxes combination could be modified in accordance with the teachings of Paragios et al. Applicants recognize that the Examiner was primarily relying on the Paragios et al. reference as providing a teaching to use statistical data representing human anatomy for the purpose of image analysis, however, Applicants submit this is an extreme over-generalization of the teachings of Paragios et al. As noted above, the only purpose that is made of such statistical information in the Paragios et al. reference is for the purpose of *post-processing* an image that has already been acquired. The most that can be said if the Paragios et al. disclosure were used to modify the Born et al./Baxes system is that an image acquired with that system would then be analyzed in the manner disclosed in the Paragios et al. reference. For the reasons discussed above, however, this provides no assistance or guidance for the actual positioning of the patient prior to obtaining the image data. Applicants respectfully submit that if a person of ordinary skill in the field of operating a treatment/imaging unit had the insight to use information disclosed in the prior art exclusively for image post-processing purposes, for the completely different purpose of assisting in accurately positioning a patient *prior to* acquiring any image data, this would be an insight supporting patentability, rather than a reason for precluding patentability.

In summary, therefore, Applicants submit it is only by hindsight, after having had the benefit of revealing Applicants' present disclosure, that the Examiner has been able to comb the prior art in order to locate separate and disparate teachings in references that, except for all being very generally related to medical imaging, concern completely different and unrelated aspects of the overall medical imaging field. Applicants respectfully submit there is no teaching or guidance that is provided by any of those references to modify the references in order to arrive at the subject matter of either of independent claims 1 or 14. Moreover, for the reasons also discussed above, even if such a combination were made, the subject matter of claims 1 and 14 still would not result, in view of the exclusive post-processing of images involving interior anatomy that is disclosed in the Paragios et al. reference.

Claims 3 and 8 add further steps to the non-obvious method of claim 1, and claims 16 and 21 add further components to the non-obvious combination of claim 14, and therefore none of those dependent claims would have been obvious to a person of ordinary skill in the field of acquiring medical data from a patient, under the provisions of 35 U.S.C. §103(a) based on the teachings of Born et al., Baxes and Paragios et al.

Claims 2, 4-7, 9, 10, 13, 15, 17-20, 22, 23 and 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over the above combination, further in view of Banks et al. Claims 11-13 and 24-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Born et al./Baxes/Paragios et al./Banks et al. combination, further in view of Cosman.

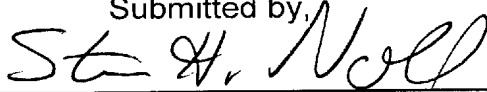
These rejections are respectfully traversed for the same reasons as discussed above in connection with the independent claims. For the reasons discussed above,

even if the Examiner's statements concerning the teachings of Banks et al. and/or Cosman are correct, modifying the Born et al./Baxes/Paragios et al. combination in accordance with those teachings still would not result in the subject matter in any of the aforementioned dependent claims, in view of the absence of the subject matter of either of claims 1 or 14 resulting from a combination of Born et al., Baxes and Paragios et al.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,



(Reg. 28,982)

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